

Patent Claims:

1. A supply device for the supply of pressure fluid into at least one vehicle brake, or into a pressure fluid accumulator, or into a master brake cylinder, comprising the following features:

a piston (2) is movably arranged in an accommodating member (4),

a carrier (6) bears a non-return valve (7) arranged coaxially to the piston (2) for the purpose of ventilating a working chamber (11) into which the piston (2) plunges,

a resetting spring (5) is arranged between the carrier (6) and the piston (2),

c h a r a c t e r i z e d in that

a multi-piece cage (16) is provided for the elastically preloaded casing of the resetting spring (5) in such a fashion that the resetting spring (5) can be inserted into cage parts (17, 18) and compressed with these, and the cage parts (17, 18) provided with fastening means (20) are locked at each other due to displacement of the cage parts (17, 18) in relation to each other, with a simultaneous preloading of the resetting spring (5).

2. The supply device as claimed in claim 1,  
c h a r a c t e r i z e d in that a catch-type engagement is provided for fastening the cage parts (17, 18) to one another, and at least one locking arm (21, 22) is provided on at least one cage part (17) for engagement

into a locking recess (25, 26) of an associated second cage part (18).

3. The supply device as claimed in claim 1,  
c h a r a c t e r i z e d in that each cage part (17, 18) includes several fastening means (20), and in that for locking the cage parts (17, 18), at least two pairs of fastening means (20) with two locking arms (21, 22) and two locking recesses (25, 26) are active.
4. The supply device as claimed in claim 3,  
c h a r a c t e r i z e d in that the two active fastening means (20) are generally arranged opposite each other.
5. The supply device as claimed in claim 1,  
c h a r a c t e r i z e d in that each cage part (17, 18) includes fastening means (20) provided in pairs and lying diametrically opposite each other.
6. The supply device as claimed in claim 5,  
c h a r a c t e r i z e d in that opposed fastening means (20) of a cage part (17, 18) have an equal design in each case.
7. The supply device as claimed in claim 5,  
c h a r a c t e r i z e d in that opposed fastening means (20) of a cage part (17, 18) have a different design in each case.

8. The supply device as claimed in claim 1,  
c h a r a c t e r i z e d in that at least one cage part  
(17, 18) includes a separate guiding portion (32), in  
particular for the mutual centering and guiding.
9. The supply device as claimed in claim 8,  
c h a r a c t e r i z e d in that a guiding portion (32)  
has a rounded or inclined conical configuration so that  
the associated cage part (17, 18) is automatically lead  
into the correct position in the locking operation.
10. The supply device as claimed in claim 1,  
c h a r a c t e r i z e d in that a cage part (18) has a  
cylindrical wall with which the cage (16) is accommodated  
in the carrier (16) for forming a modular unit, and in  
that the carrier-side accommodating area is provided  
independently of and spaced from the fastening means (20)  
for the cage parts (17, 18).
11. The supply device as claimed in claim 2, 3, or 8,  
c h a r a c t e r i z e d in that the cage parts (17,  
18) have a larger number of locking arms (21, 22) than  
locking recesses (25, 26), and in that in the cage-part  
circumferential direction (U) the width (B) of the locking  
arms (21, 22) is considerably smaller than a width (b) of  
the locking recesses (25, 26) so that cage parts (17, 18)  
arranged as twisted as desired relative to each other in  
cage-part circumferential direction (U) can be locked  
directly.

12. The supply device as claimed in any one or more of the preceding claims,  
c h a r a c t e r i z e d in that one end of the resetting spring (5) is directly movable into abutment on a bottom (27) of the cage part (18), and in that the other end of the resetting spring (5) is movable into abutment on a brim (29) of the cage part (17) by way of a bowl-shaped spring retainer (28).
13. The supply device as claimed in claim 12,  
c h a r a c t e r i z e d in that a bowl wall (30) of the spring retainer (28) extends at least in part over a piston end (31) of the supply device.
14. A spring assembly comprising two cage parts (17, 18) and a resetting spring (5) for use in an electronically controlled brake system,  
c h a r a c t e r i z e d in that a multi-piece cage (16) for the elastically preloaded casing of the resetting spring (5) is provided in such a fashion that the resetting spring (5) can be inserted into cage parts (17, 18) and compressed with these, and the cage parts (17, 18) provided with fastening means (20) are locked at each other due to displacement of the cage parts (17, 18) in relation to each other, with a simultaneous preloading of the resetting spring (5).
15. The spring assembly as claimed in claim 14,  
c h a r a c t e r i z e d by the characterizing features as claimed in any one or more of the preceding patent claims 2 to 12.